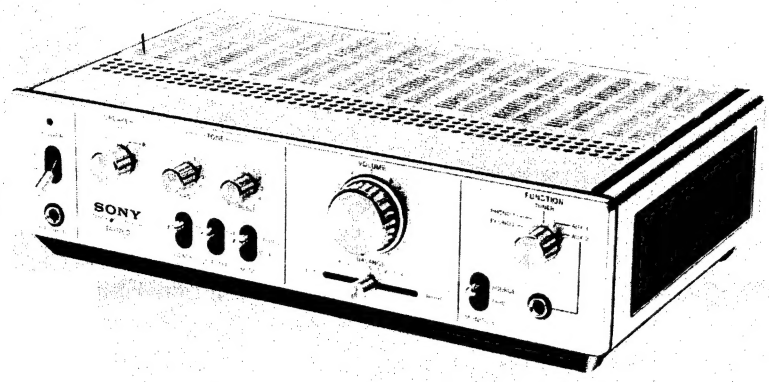
TA-1120

E Model
GEP Model



INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

POWER AMPLIFIER SECTION

Continuous RMS Power Output: At 1 kHz
Both channels driven simultaneously
15 + 15 W (8 Ω)
Per channel operating
19 + 19 W (8 Ω)

Dynamic Power Output: (IHF constant power supply method) 44 W (8 Ω)

Harmonic Distortion: Less than 0.5 % at rated output
Less than 0.2 % at 1 W output

IM Distortion: (60 Hz: 7 kHz = 4 : 1) Less than 1 % at 1 W output

PREAMPLIFIER SECTION

Frequency Response: PHONO 1, 2: RIAA equalization curve ± 1 dB
TUNER, AUX 1, 2, TAPE: 20 Hz–60 kHz $^{+0}_{-3}$ dB

Tone Controls: BASS: ±10 dB at 100 Hz
TREBLE: ±10 dB at 10 kHz

Filters: HIGH: 6 dB/oct. above 5 kHz

Loudness Control: (att. 30 dB) + 8 dB at 100 Hz
+ 4 dB at 10 kHz

Inputs:

	Sensitivity	Impedance
PHONO	2.5 mV	47 kΩ
TUNER AUX 1, 2 TAPE REC/PB (input)	250 mV	100 kΩ

Outputs:

	Output Level	Impedance
REC OUT	250 mV	10 kΩ
REC/PB (output)	5 mV	100 kΩ

HEADPHONES: Accepts low and high impedance headphones.

SPEAKER: Accepts 4–16 Ω speakers.

S/N Ratio:

	S/N	Weighting network	Input Level
PHONO	65 dB	B	2.5 mV
TUNER AUX 1, 2 TAPE REC/PB (input)	90 dB	A	250 mV

GENERAL

Power Requirements: 100, 120, 220 or 240 V ac ~, adjustable 50/60 Hz

Power Consumption: 36 W

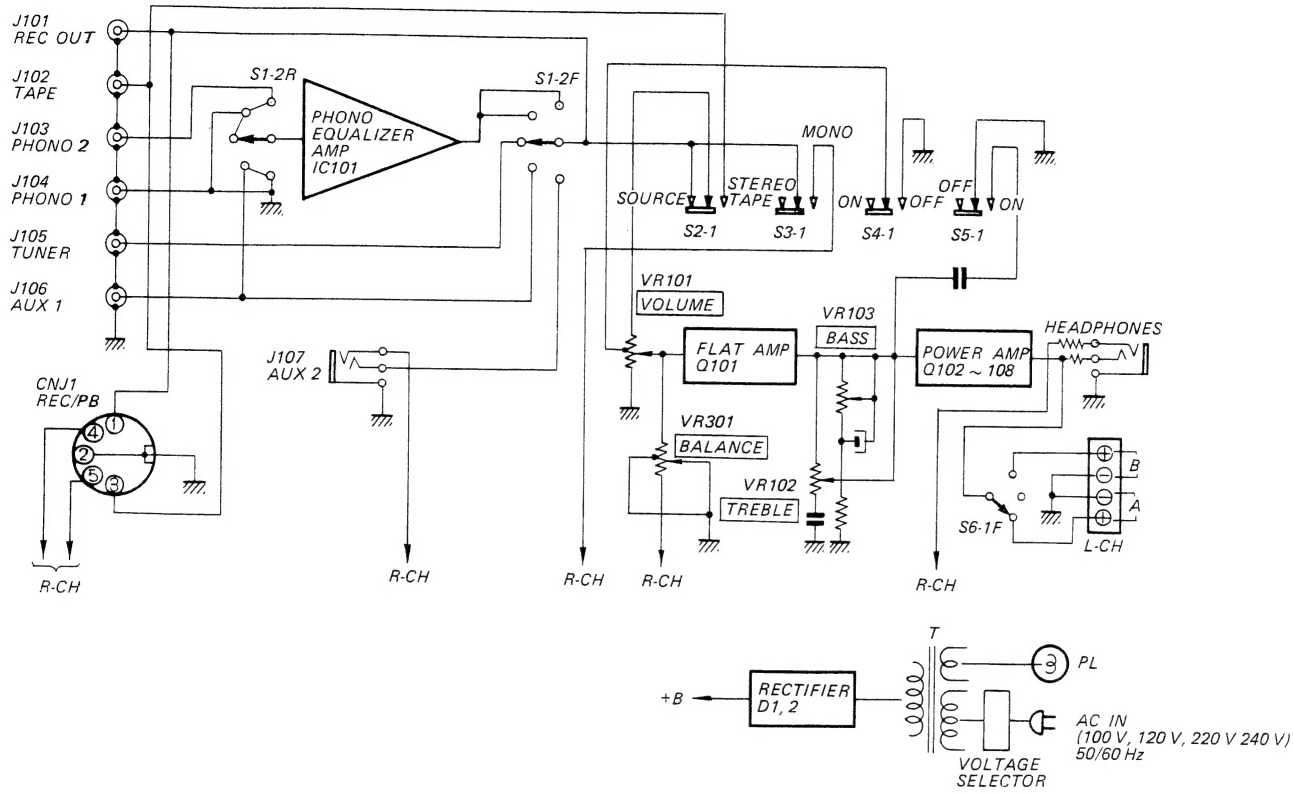
Dimensions: Approx. 358 (w) x 102 (h) x 234 (d) mm
14 1/8 (w) x 4 1/16 (h) x 9 1/4 (d) inches
Including projecting parts and controls

Weight: Approx. 4.2 kg (10 lb 5 oz)

SONY

SERVICE MANUAL

SECTION 1
BLOCK DIAGRAM



Ref. No.	Description	Position
S1	FUNCTION	TUNER
S2	MONITOR	SOURCE
S3	MODE	STEREO
S4	LOUDNESS	ON
S5	HI-FILTER	OFF
S6	SPEAKER	A

SECTION 3
ADJUSTMENT

2-1. DC BIAS/AC BALANCE ADJUSTMENT PARTS LOCATION

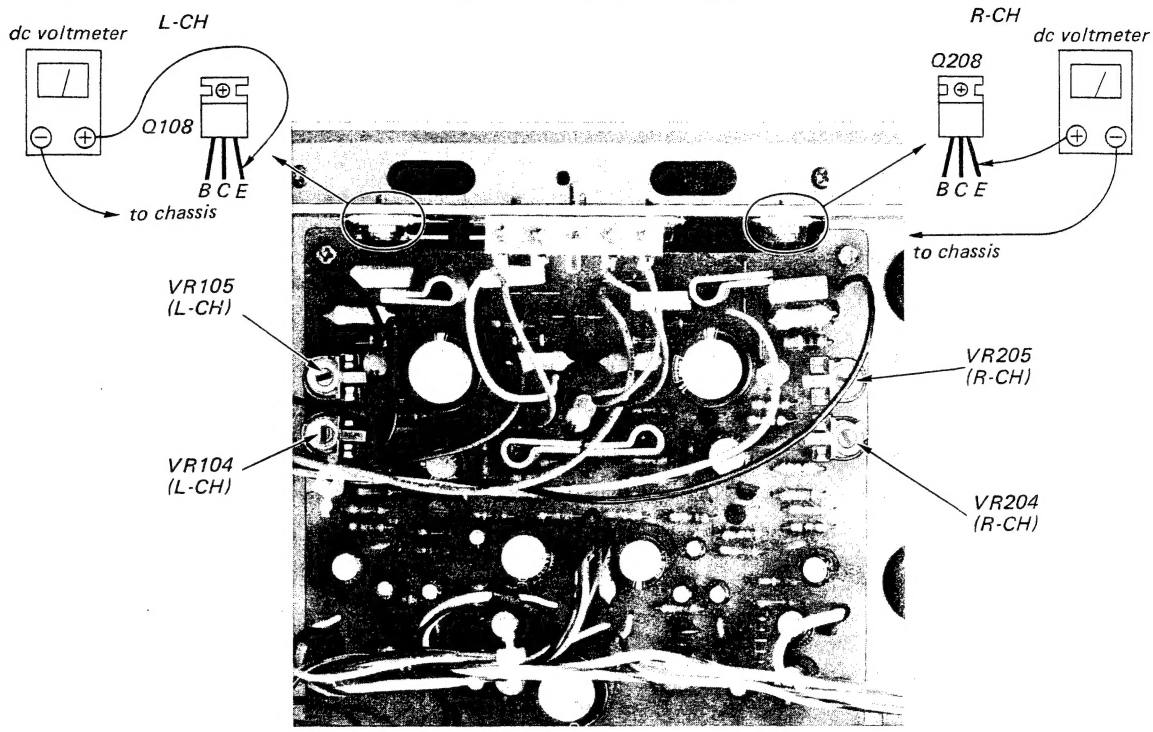


Fig. 2-1.

2-2. PREPARATION

CAUTION:
- These adjustments should be alternately repeated two or three times after replacing any of the transistors in the power amplifier.
- To avoid accidental power transistor damage, increase the ac line voltage gradually (using a variable transformer) up to the rated value while measuring the voltage shown in Fig. 2-1.

Control/Switch Setting:

TONE control:	mechanical mid
MODE switch:	STEREO
MONITOR switch:	SOURCE
FUNCTION control:	TUNER
SPEAKER control:	A

2-3. DC BIAS ADJUSTMENT

Adjust VR105 (VR205) for 5 mV reading on the meter with no signal input.

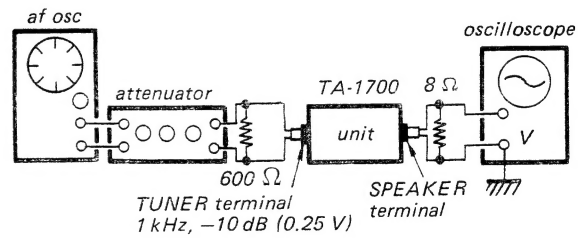
NOTE: Connect the resistor (8 Ω) between the speaker terminals.

Turning direction of increasing the voltage.

VR105 (L-CH)	Counterclockwise
VR205 (R-CH)	Clockwise

2-4. AC BALANCE ADJUSTMENT

Setup:



Procedure:

Turning the VOLUME control clockwise gradually, adjust VR104 (VR204) to obtain the clipped sine wave (shown in Fig. 2-2) on the oscilloscope.

On the oscilloscope:

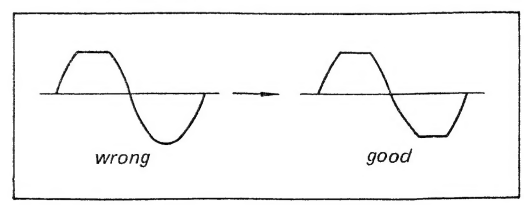
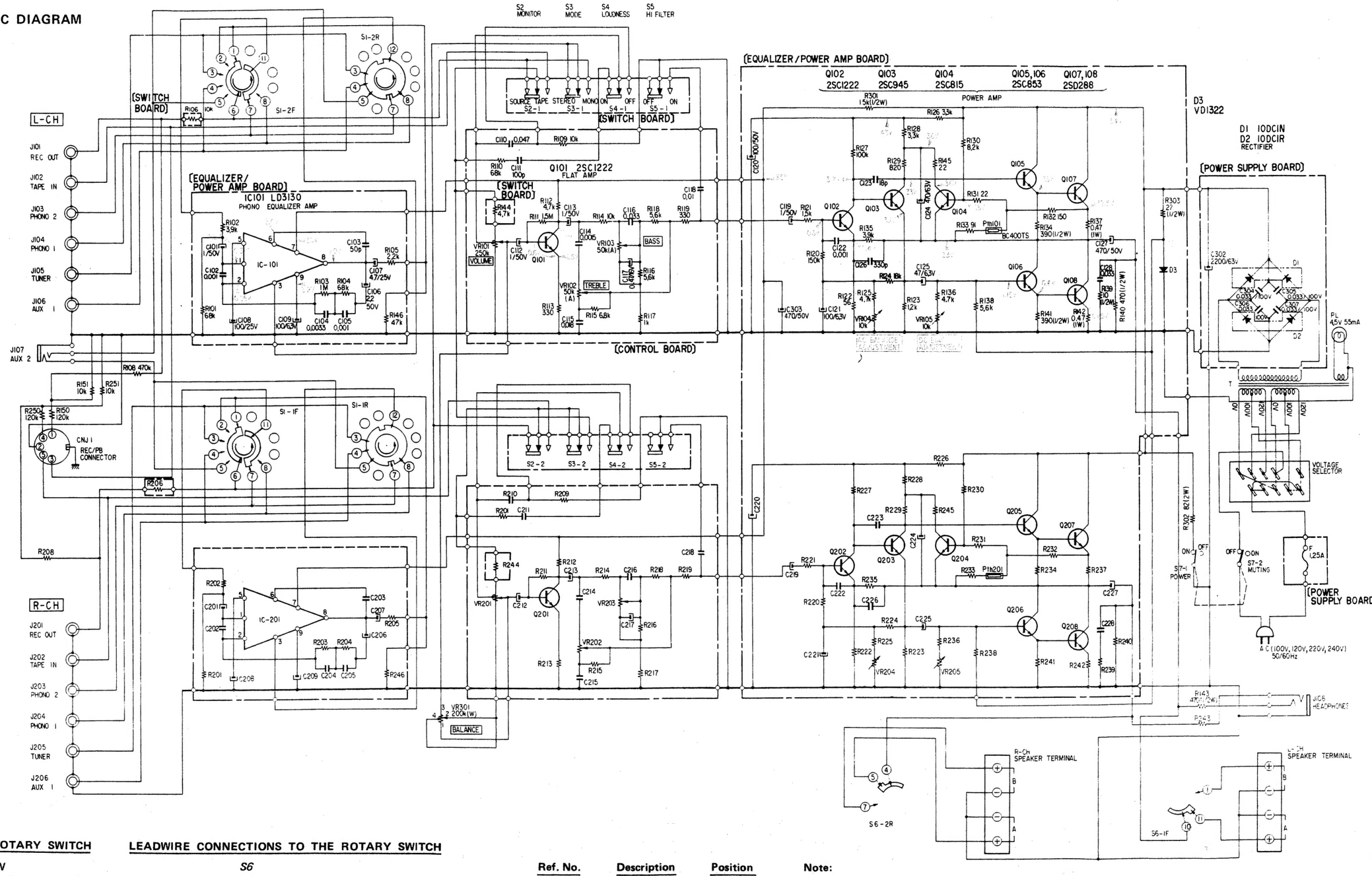


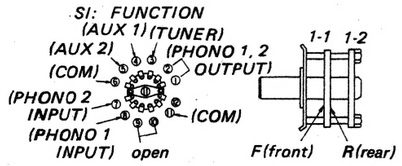
Fig. 2-2.

SECTION 4
DIAGRAMS

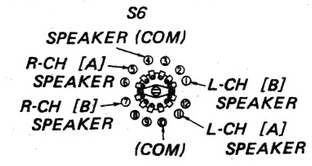
4-1. SCHEMATIC DIAGRAM



THE VIEW OF ROTARY SWITCH



LEADWIRE CONNECTIONS TO THE ROTARY SWITCH



Ref. No.	Description	Position
S1	FUNCTION	PHONO 2
S2	MONITOR	SOURCE
S3	MODE	STEREO
S4	LOUDNESS	ON
S5	HI-FILTER	OFF
S6	SPEAKER	A
S7-1	POWER	ON
S7-2	MUTING	OFF

Note:

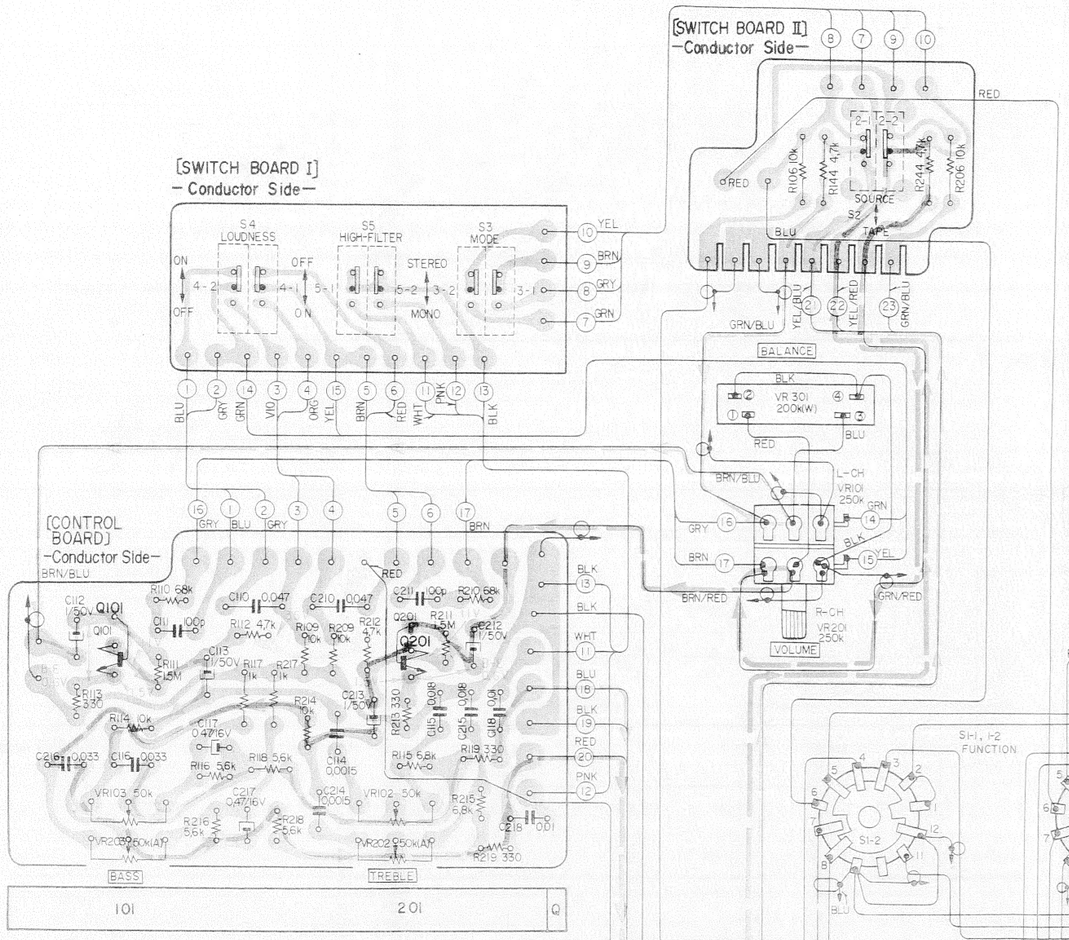
All resistance values are in ohms. k = 1,000 M = 1,000 k

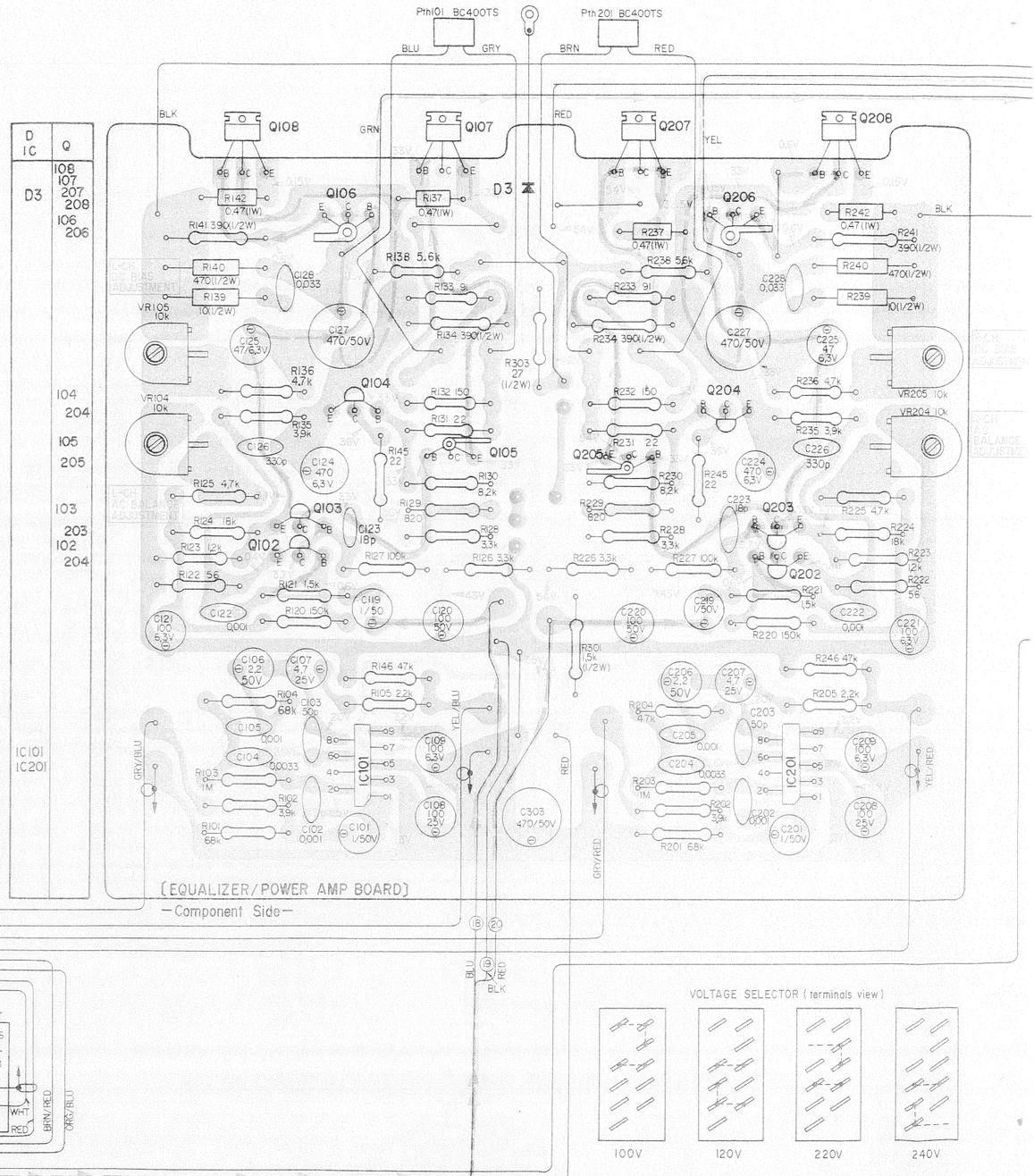
All capacitance values are in μF except as indicated with p, which means μμF.

All voltages are dc measured with a VOM which has an input impedance of 20 k ohms/volt. No signal in.

Voltage variations may be noted because of normal production tolerances.

4-2. MOUNTING DIAGRAM





Pth101 BC400TS
Pth201 BC400TS
BLU GRY
BRN RED

Q108 Q107 Q207 Q208
Q106 Q206
Q104 Q204
Q105 Q205
Q103 Q203
Q102 Q202
D3

D IC	Q
D3	108 107 207 208 106 206
	104 204
	105 205
	103 203
	102 204

IC101 IC201

SPEAKER TERMINAL
L-CH
R-CH
SPEAKER
S6

[POWER SUPPLY BOARD]
—Conductor Side—
F 1.25A
R302 82 (2W)
C302 2200/63V
D1 D2
PL 45V 55mA
Contact tip
J108 HEADPHONES
(Inserted between the upper panel and the top cover.)
VOLTAGE SELECTOR
S7 POWER
CR (0.033μ+120Ω)
AC 100V,120V,220V,240V 50/60Hz

[EQUALIZER/POWER AMP BOARD]
—Component Side—

J107 AUX 2
S1-1, F2 FUNCTION
S1-2
J101 J102 J103 J104 J105 J106
AUX-1 TAPE TUNER PHONO 2 PHONO 1
J201 J202 J203 J204 J205 J206
R-CH TAPE IN

VOLTAGE SELECTOR (terminals view)
100V 120V 220V 240V

Q105, 106 Q205, 206 } 2SC853

Q107, 108 Q207, 208 } 2SD288

Q101, 102 Q201, 202 } 2SC1222
Q103, 203: 2SC945
Q104, 204: 2SC815

IC101, 201: LD3130

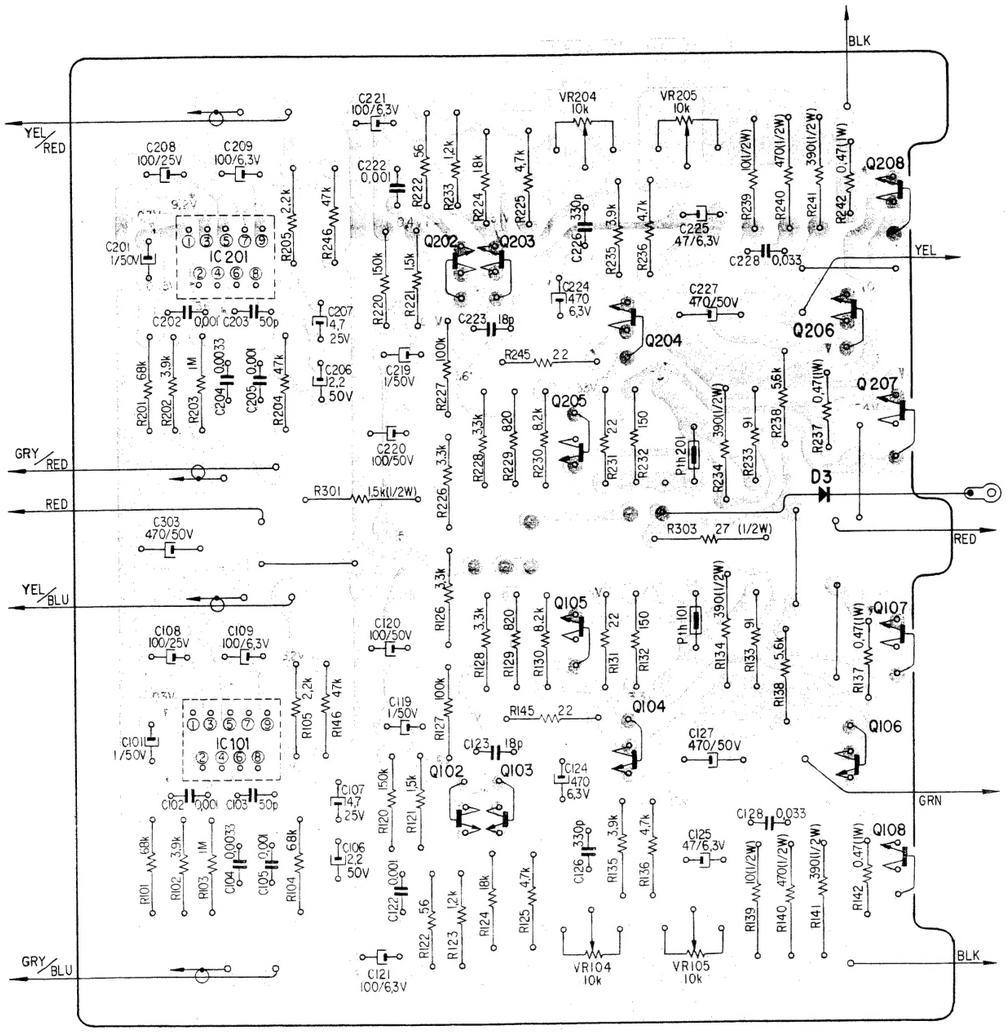
D1: 10DC 1N

D2: 10DC 1R

D3: VD1322

4-3. MOUNTING DIAGRAM – Equalizer/Power Amp Board –

– Conductor Side –



Q		202 203 102 103		205 105	204 104		206 208 207 106 107 108
D IC	IC201 IC101				D3		

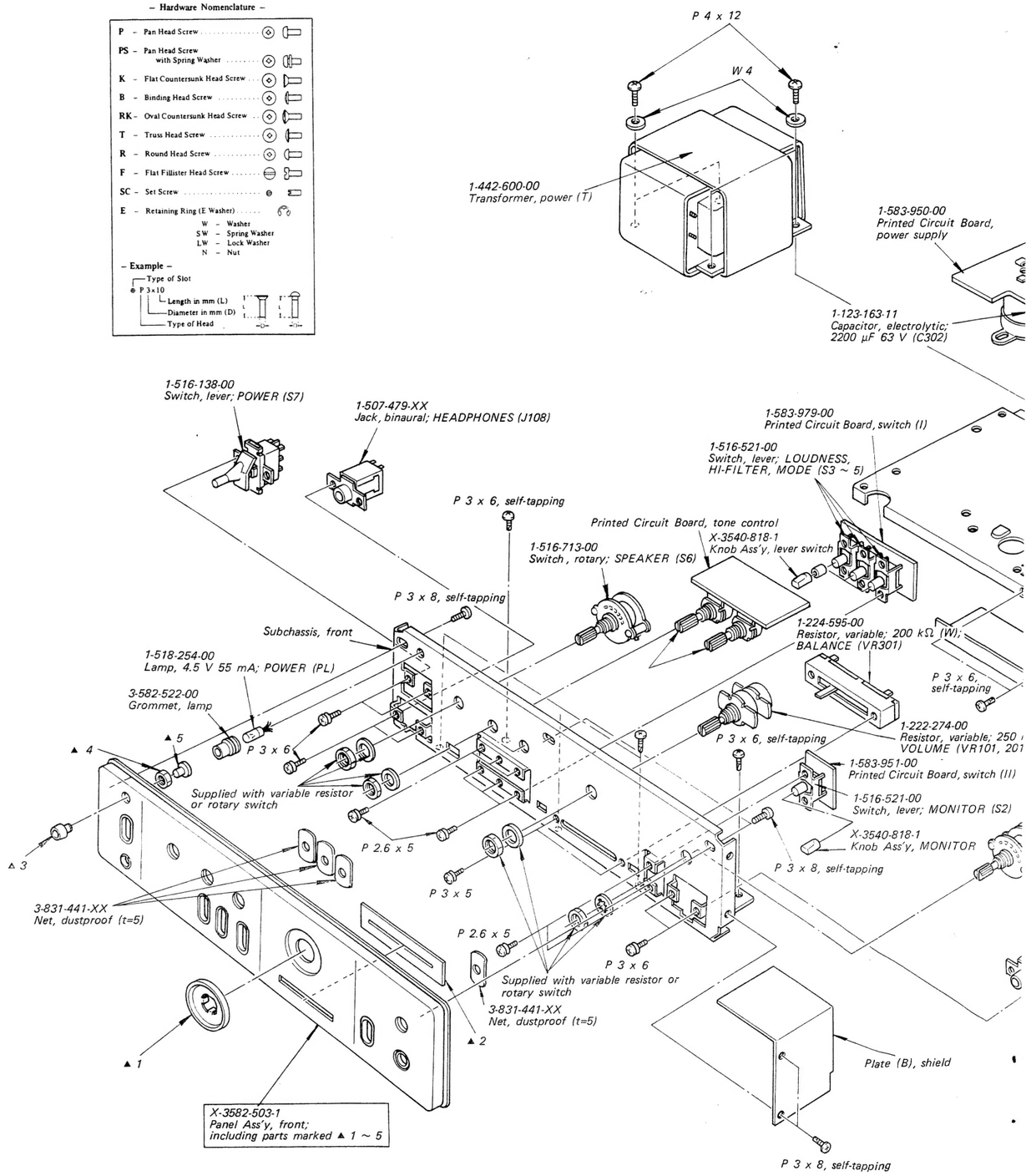
SECTION 5
EXPLODED VIEWS

– Hardware Nomenclature –

P – Pan Head Screw
PS – Pan Head Screw with Spring Washer
K – Flat Countersunk Head Screw
B – Binding Head Screw
RK – Oval Countersunk Head Screw
T – Truss Head Screw
R – Round Head Screw
F – Flat Fillister Head Screw
SC – Set Screw
E – Retaining Ring (E Washer)

W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

– Example –
Type of Slot
P 3×10
Length in mm (L)
Diameter in mm (D)
Type of Head



SECTION 5
EXPLODED VIEWS

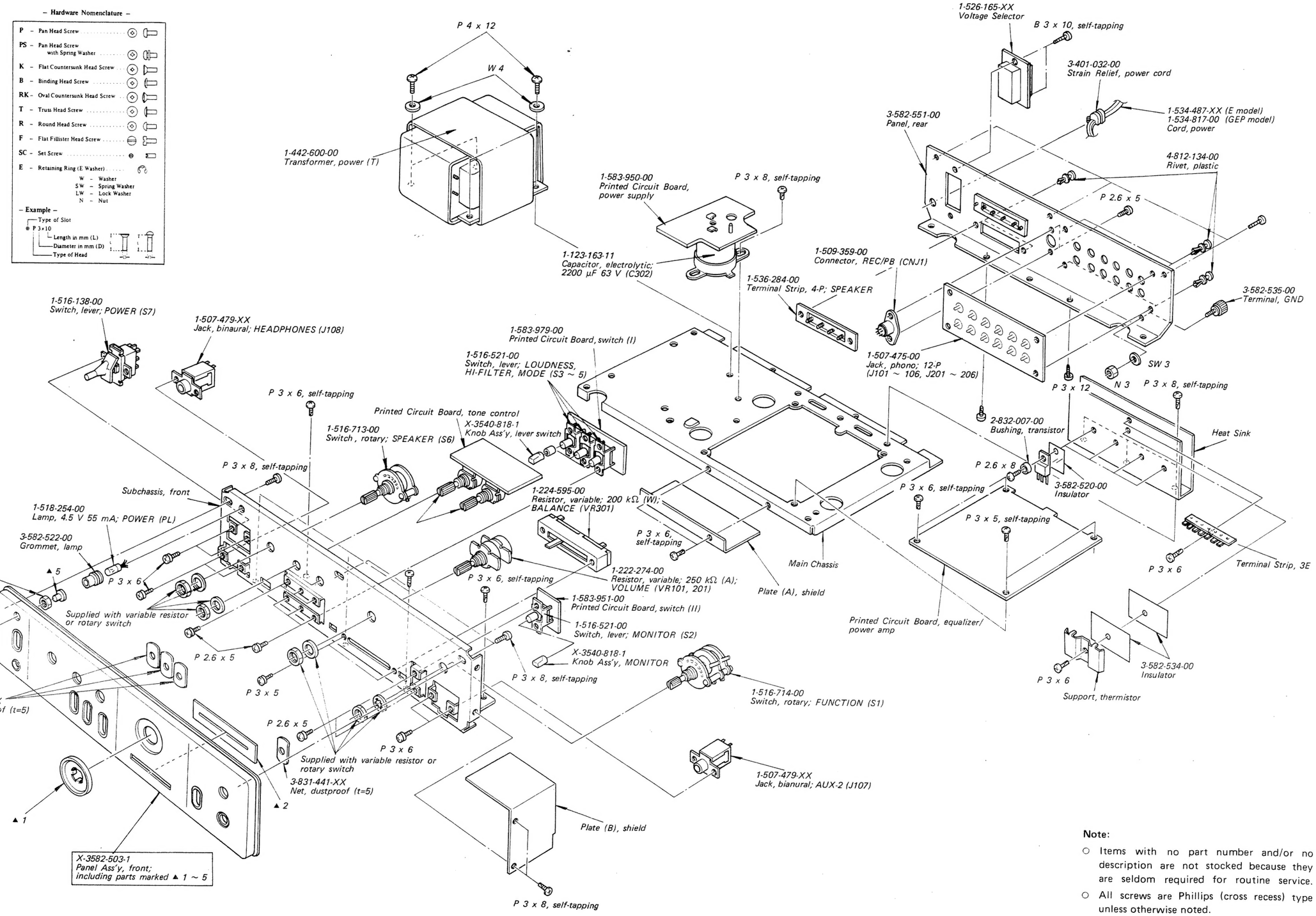
(1)

– Hardware Nomenclature –

P – Pan Head Screw
PS – Pan Head Screw with Spring Washer
K – Flat Countersunk Head Screw
B – Binding Head Screw
RK – Oval Countersunk Head Screw
T – Truss Head Screw
R – Round Head Screw
F – Flat Fillister Head Screw
SC – Set Screw
E – Retaining Ring (E Washer)

W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

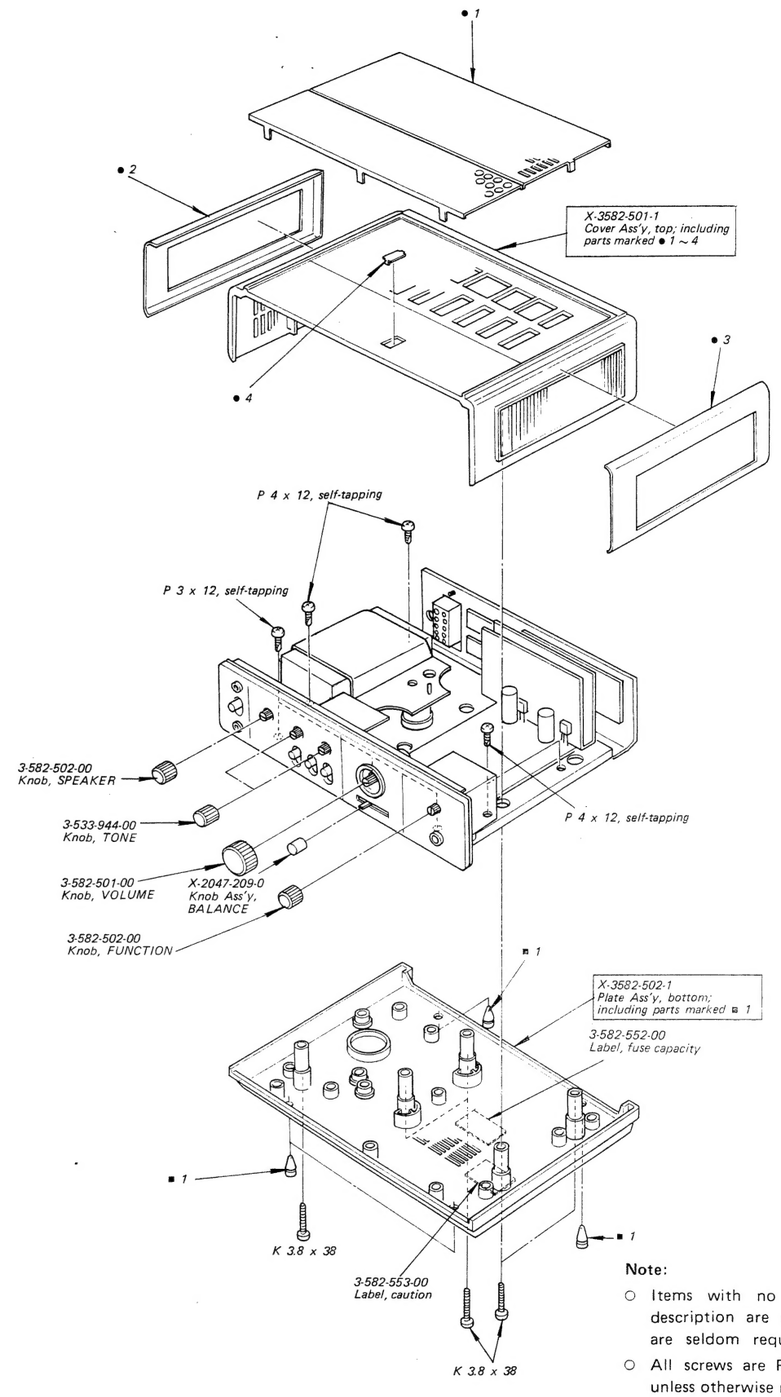
– Example –
Type of Slot
P 3×10
Length in mm (L)
Diameter in mm (D)
Type of Head



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

(2)



Note:

- ○ Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- ○ All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

Ref. No.	*Part No.*	*Description*		
R301	1-244-877-11	1.5 k	½ W	carbon
R302	1-207-635-11	82	2 W	cement-coated
R303	1-202-535-11	27	½ W	composition
VR101, 201	1-222-274-00	250 k(A), variable; VOLUME		
VR102, 202 VR103, 203	1-224-594-00	50 k(A), variable; TREBLE, BASS		
VR104, 204 VR105, 205	1-224-645-XX	10 k, adjustable		
VR301	1-224-595-00	200 k (W), variable; BALANCE		

SWITCHES

S1	1-516-714-00	Rotary, FUNCTION
S2 ~ 5	1-516-521-00	Lever, MONITOR, LOUDNESS, HI-FILTER, MODE
S6	1-516-713-00	Rotary, SPEAKER
S7	1-516-138-00	Lever, POWER

Ref. No.	*Part No.*	*Description*

MISCELLANEOUS

CNJ1	1-509-359-00	Connector, REC/PB
CR	1-231-057-00	Encapsulated Component
F	1-532-361-XX	Fuse, 1.25 A
J101 ~ 106 J201 ~ 206	1-507-475-00	Jack, phono; 12-P
J107, 108	1-507-479-XX	Jack binaural; AUX-2, HEADPHONES
PL	1-518-254-00	Lamp, 4.5 V 55 mA; POWER
T	1-442-600-00	Transformer, power
	1-534-487-XX	Cord, power (E model)
	1-534-817-00	Cord, power (GEP model)
	1-526-165-XX	Voltage Selector
	1-536-284-00	Terminal Strip, 4-P; SPEAKER

ACCESSORIES

Part No.	*Description*
3-582-536-00	Spacer, rubber
3-780-635-51	Manual, instruction

SECTION 6
ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
	PRINTED CIRCUIT BOARD	
	1-583-950-00	Power supply
	1-583-951-00	Switch (II)
	1-583-979-00	Switch (I)
	SEMICONDUCTORS	
	Transistors	
Q101, 201 Q102, 202		2SC1222
Q103, 203		2SC945
Q104, 204		2SC815
Q105, 205 Q106, 206		2SC853
Q107, 207 Q108, 208		2SD288
	ICs	
IC101, 201		LD3130
	Diodes	
D1		10DC 1N
D2		10DC 1R
	Miscellaneous	
D3		Varistor, VD1322
Pth101, 201	1-800-366-00	Thermistor (positive)
	CAPACITORS	

All capacitors are in μF and of electrolytic unless otherwise noted. (p = μμF) 50 or less working volts are omitted except for electrolytic type.

C101, 201	1-121-391-11	1	50 V	
C102, 202	1-102-074-11	0.001		ceramic
C103, 203	1-101-882-11	50 p		ceramic
C104, 204	1-105-665-12	0.0033		mylar
C105, 205	1-105-661-12	0.001		mylar
C106, 206	1-121-450-11	2.2	50 V	
C107, 207	1-121-395-11	4.7	25 V	
C108, 208	1-121-416-11	100	25 V	
C109, 209	1-121-413-11	100	6.3 V	
C110, 210	1-105-521-12	0.047		mylar
C111, 211	1-103-701-11	100 p		styrol
C112, 212 C113, 213	1-121-391-11	1	50 V	
C114, 214	1-105-503-12	0.0015		mylar
C115, 215	1-105-516-12	0.018		mylar
C116, 216	1-105-519-12	0.033		mylar
C117, 217	1-127-204-11	0.47	16 V	solid aluminum
C118, 218	1-105-513-12	0.01		mylar
C119, 219	1-121-391-11	1	50 V	
C120, 220	1-121-417-11	100	50 V	
C121, 221	1-121-413-11	100	6.3 V	
C122, 222	1-102-074-11	0.001		ceramic
C123, 223	1-102-957-11	18 p		ceramic
C124, 224	1-121-424-11	470	6.3 V	
C125, 225	1-121-979-11	47	6.3 V	
C126, 226	1-102-773-11	330 p		ceramic
C127, 227	1-121-983-11	470	50 V	(explosion proof)
C128, 228	1-105-519-12	0.033		mylar
C302	1-123-163-11	2200	63 V	
C303	1-121-983-11	470	50 V	(explosion proof)
C304 ~ 307	1-105-879-12	0.033	100 V	mylar

RESISTORS

All resistors are in ohms. Regular-type ¼W carbon resistors are omitted. Check schematic diagram for resistance values.
k = 1000

R134, 234	1-244-863-11	390	½ W	carbon (nonflammable)
R137, 237	1-217-153-11	0.47	1 W	cement-coated
R139, 239	1-202-525-11	10	½ W	composition
R140, 240	1-202-565-11	470	½ W	composition
R141, 241	1-244-863-11	390	½ W	carbon (nonflammable)
R142, 242	1-217-153-11	0.47	1 W	cement-coated
R143, 243	1-202-565-11	470	½ W	composition